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Proposed Regulation Agency Background Document

Agency name	Department of Labor and Industry/Safety and Health Codes Board
Virginia Administrative Code (VAC) citation(s)	16VAC25-50
Regulation title(s)	Boiler and Pressure Vessel Rules and Regulations
Action title	Amendment of Forms and Documents Incorporated by Reference in the Boiler and Pressure Vessel Rules and Regulations
Date this document prepared	February 28, 2017

This information is required for executive branch review and the Virginia Registrar of Regulations, pursuant to the Virginia Administrative Process Act (APA), Executive Orders 17 (2014) and 58 (1999), and the *Virginia Register Form, Style, and Procedure Manual*.

Brief summary

Please provide a brief summary (preferably no more than 2 or 3 paragraphs) of the proposed new regulation, proposed amendments to the existing regulation, or the regulation proposed to be repealed. Alert the reader to all substantive matters or changes. If applicable, generally describe the existing regulation.

The Boiler Safety Compliance Program seeks to amend the Boiler and Pressure Vessel Rules and Regulations by updating to the most recent editions of the following "Forms" and "Documents Incorporated by Reference" (DIBR), as listed below:

Forms (16VAC 25-50)

Form R-1, Report of Repair, National Board Inspection Code NB-66, Rev.13, (06/25/15)

Form R-2, Report of Alteration, National Board Inspection Code NB-229, Rev.7, (11/12/15)

Form R-3, Report of Parts Fabricated By Welding, National Board Inspection Code NB-230, Rev. 3 (09/24/15)

Form R-4, Report Supplement Sheet, National Board Inspection Code NB-231 Rev. (09/23/15).

Documents Incorporated by Reference (16VAC 25-50)

1. 2015 ASME -Boiler and Pressure Vessel Code;
2. National Board Bylaws, National Board of Boiler and Pressure Vessel Inspectors, August 12, 2015;
3. ANSI/NB 23, 2015 National Board Inspection Code, National Board of Boiler and Pressure Vessel Inspectors;
4. ASME Code B 31.1, ASME Code for Pressure Piping, American National Standards Institute, 2014;
5. NFPA 85 Boiler and Combustion Systems Hazards, 2015 Edition, National Fire Protection Association;
6. Part CG (General), Part CW (Steam and Waterside Control) and Part CF (Combustion Side Control) Flame Safeguard of ANSI/ASME CSD-1, Controls and Safety Devices for Automatically Fired Boilers, 2012, American Society of Mechanical Engineers; and
7. API 510, Pressure Vessel Inspection Code, In-service Inspection, Rating, Repair and Alteration, Tenth Edition, May 2014, American Petroleum Institute.

Acronyms and Definitions

Please define all acronyms used in the Agency Background Document. Also, please define any technical terms that are used in the document that are not also defined in the "Definition" section of the regulations.

- "API" means American Petroleum Institute
- "ASME" means The American Society of Mechanical Engineers
- "ANSI" means American National Standards Institute
- "NBIC" means National Board Inspection Code
- "NFPA" means National Fire Protection Association

Legal basis

Please identify the state and/or federal legal authority to promulgate this proposed regulation, including: 1) the most relevant citations to the Code of Virginia or General Assembly chapter number(s), if applicable; and 2) promulgating entity, i.e., agency, board, or person. Your citation should include a

specific provision authorizing the promulgating entity to regulate this specific subject or program, as well as a reference to the agency/board/person's overall regulatory authority.

The Safety and Health Codes Board is authorized by Title 40.1-51.6.A. of the *Code of Virginia* to:

“...formulate definitions, rules, regulations and standards which shall be designed for the protection of human life and property from the unsafe or dangerous construction, installation, inspection, operation, maintenance and repair of boilers and pressure vessels in this Commonwealth.”

Purpose

Please explain the need for the new or amended regulation. Describe the rationale or justification of the proposed regulatory action. Describe the specific reasons the regulation is essential to protect the health, safety or welfare of citizens. Discuss the goals of the proposal and the problems the proposal is intended to solve.

The purpose of this proposed regulatory action is to update to the most current editions of the ASME, NBIC, and NFPA safety and inspection codes.

Substance

Please briefly identify and explain the new substantive provisions, the substantive changes to existing sections, or both. A more detailed discussion is provided in the “Detail of changes” section below.

The Boiler Safety Compliance Program seeks to amend the Boiler and Pressure Vessel Rules and Regulations by updating to the most recent editions of the following “Forms” and “Documents Incorporated by Reference” (DIBR), as listed below:

Forms (16VAC 25-50)

1. Form R-1, Report of Repair, National Board Inspection Code NB-66 (rev.13 6/25/15)
2. Form R-2, Report of Alteration, National Board Inspection Code NB-229 (rev.7 11/12/15)
3. Form R-3, Report of Parts Fabricated By Welding, National Board Inspection Code NB-230 (Rev.3 9/24/15)
4. Form R-4, Report Supplementary Sheet, National Board Inspection Code NB-231 (9/23/15).

Documents Incorporated by Reference (16VAC 25-50)

1. 2015 Boiler and Pressure Vessel Code, ASME Code, American Society of Mechanical Engineers;
2. National Board Bylaws, National Board of boiler and Pressure Vessel Inspectors, August 12, 2015;

3. ANSI/NB 23, 2015 National Board Inspection Code, National Board of Boiler and Pressure Vessel Inspectors;
4. ASME Code B 31.1, ASME Code for Pressure Piping, American National Standards Institute, 2014;
5. NFPA 85 Boiler and Combustion Systems Hazards, 2015 Edition, National Fire Protection Association;
6. Part CG (General), Part CW (Steam and Waterside Control) and Part CF (Combustion Side Control) Flame Safeguard of ANSI/ASME CSD-1, Controls and Safety Devices for Automatically Fired Boilers, 2012, American Society of Mechanical Engineers; and
7. API 510, Pressure Vessel Inspection Code, In-service Inspection, Rating, Repair and Alteration, Tenth Edition, May 2014, American Petroleum Institute.

Issues

Please identify the issues associated with the proposed regulatory action, including: 1) the primary advantages and disadvantages to the public, such as individual private citizens or businesses, of implementing the new or amended provisions; 2) the primary advantages and disadvantages to the agency or the Commonwealth; and 3) other pertinent matters of interest to the regulated community, government officials, and the public. If there are no disadvantages to the public or the Commonwealth, please indicate.

The proposed regulations will provide both increased protection of human life (both employee safety and public safety) as well as property from the unsafe or dangerous construction, installation, inspection, operation, and repair of boilers and pressure vessels in the Commonwealth of Virginia. The primary advantages of conforming to the most recent forms and other documents incorporated by reference consistency with the national references.

- 1) The primary advantage to the public associated with this proposed regulatory action is the use of the latest editions of publications, required for use by the boiler and pressure vessel industry. These changes are deemed necessary to update the proposed regulations to the current editions of ASME, NBIC and NFPA safety and inspection codes which are incorporated by reference into the Commonwealth's Boiler and Pressure Vessel Rules and Regulations. The most current editions of required documents, which contain the latest technological information, will provide both increased protection of human life (both employee safety and public safety) as well as protecting property from unsafe or dangerous construction, installation, inspection, operation, and repair of boilers and pressure vessels in the Commonwealth of Virginia. Companies that utilize the ASME, NBIC and NFPA safety and inspection codes for construction or repair are already required to have and work to the latest editions of these codes. The proposed regulation causes no known disadvantages to private citizens or businesses.
- 2) The primary advantage for the Commonwealth associated with this proposed regulatory action is the use of the latest editions of the aforementioned publications for consistency with the boiler and pressure vessel industry nationwide. Virginia companies that utilize the ASME, NBIC and NFPA safety and inspection codes for construction or repair are already required to have

and work to the latest editions of these codes. The proposed regulation causes no known disadvantages to the Commonwealth.

Requirements more restrictive than federal

Please identify and describe any requirement of the proposal which is more restrictive than applicable federal requirements. Include a rationale for the need for the more restrictive requirements. If there are no applicable federal requirements or no requirements that exceed applicable federal requirements, include a statement to that effect.

There are no requirements of the proposed regulation which are more restrictive than applicable federal requirements.

Localities particularly affected

Please identify any locality particularly affected by the proposed regulation. Locality particularly affected means any locality which bears any identified disproportionate material impact which would not be experienced by other localities.

There are no localities that are particularly affected by the proposed regulation.

Public participation

Please include a statement that in addition to any other comments on the proposal, the agency is seeking comments on the costs and benefits of the proposal and the impacts of the regulated community.

In addition to any other comments, the Department of Labor and Industry/Safety and Health Codes Board is seeking comments on the costs and benefits of the proposal and the potential impacts of this regulatory proposal. Also, the agency/board is seeking information on impacts on small businesses as defined in § 2.2-4007.1 of the Code of Virginia. Information may include 1) projected reporting, recordkeeping and other administrative costs, 2) probable effect of the regulation on affected small businesses, and 3) description of less intrusive or costly alternative methods of achieving the purpose of the regulation.

Anyone wishing to submit written comments for the public comment file may do so by mail, email or fax to Mr. Ed Hilton, Director, Boiler Safety Compliance, Virginia Department of Labor and Industry, Main Street Centre, 600 East Main Street, Suite 207, Richmond, Virginia 23219; telephone #: 804.786.3262; fax #: 804.371.2324; Ed.Hilton@doli.virginia.gov. Comments may also be submitted through the Public Forum feature of the Virginia Regulatory Town Hall web site at: <http://www.townhall.virginia.gov>. Written comments must include the name and address of the commenter. In order to be considered, comments must be received by 11:59 pm on the last day of the public comment period.

A public hearing will be held following the publication of this stage and notice of the hearing will be posted on the Virginia Regulatory Town Hall website (<http://www.townhall.virginia.gov>) and on the Commonwealth Calendar website (<https://www.virginia.gov/connect/commonwealth-calendar>). Both oral and written comments may be submitted at that time.

Economic impact

Please identify the anticipated economic impact of the proposed new regulations or amendments to the existing regulation. When describing a particular economic impact, please specify which new requirement or change in requirement creates the anticipated economic impact.

<p>Projected cost to the state to implement and enforce the proposed regulation, including: a) fund source / fund detail; and b) a delineation of one-time versus on-going expenditures</p>	<p>There is no significant fiscal impact to the state beyond the cost of promulgating the revisions to the regulation. All revenue from boiler fees is deposited directly into the state general fund.</p>
<p>Projected cost of the new regulations or changes to existing regulations on localities.</p>	<p>No significant cost is anticipated on localities.</p>
<p>Description of the individuals, businesses, or other entities likely to be affected by the new regulations or changes to existing regulations.</p>	<p>Companies that manufacture, repair, own or operate boilers and pressure vessels.</p>
<p>Agency’s best estimate of the number of such entities that will be affected. Please include an estimate of the number of small businesses affected. Small business means a business entity, including its affiliates, that: a) is independently owned and operated and; b) employs fewer than 500 full-time employees or has gross annual sales of less than \$6 million.</p>	<p>It is estimated that 25,000 small businesses will be affected by the regulation in that they are already affected by the current regulations.</p>
<p>All projected costs of the new regulations or changes to existing regulations for affected individuals, businesses, or other entities. Please be specific and include all costs including: a) the projected reporting, recordkeeping, and other administrative costs required for compliance by small businesses; and b) specify any costs related to the development of real estate for commercial or residential purposes that are a consequence of the proposed regulatory changes or new regulations.</p>	<p>Projected costs of the amended proposed regulation:</p> <p>a) No anticipated reporting, recordkeeping, or administrative costs for small businesses; and</p> <p>b) New businesses with CO₂ tanks for liquid beverage dispensers will need to purchase signs and CO₂ meters to be in compliance, at a cost that could approach several hundred dollars.</p>
<p>Beneficial impact the regulation is designed to produce.</p>	<p>Conforming to the most current editions of the boiler safety and inspection codes to achieve uniformity throughout the industry.</p>

Alternatives

Please describe any viable alternatives to the proposal considered and the rationale used by the agency to select the least burdensome or intrusive alternative that meets the essential purpose of the action. Also, include discussion of less intrusive or less costly alternatives for small businesses, as defined in § 2.2-4007.1 of the Code of Virginia, of achieving the purpose of the regulation.

There are no alternatives to proposed revisions made to comply with the most current editions of the International Boiler and Pressure Vessel Code or the National Board Inspection Code.

Regulatory flexibility analysis

Pursuant to § 2.2-4007.1B of the Code of Virginia, please describe the agency's analysis of alternative regulatory methods, consistent with health, safety, environmental, and economic welfare, that will accomplish the objectives of applicable law while minimizing the adverse impact on small business. Alternative regulatory methods include, at a minimum: 1) the establishment of less stringent compliance or reporting requirements; 2) the establishment of less stringent schedules or deadlines for compliance or reporting requirements; 3) the consolidation or simplification of compliance or reporting requirements; 4) the establishment of performance standards for small businesses to replace design or operational standards required in the proposed regulation; and 5) the exemption of small businesses from all or any part of the requirements contained in the proposed regulation.

The proposed changes are necessary to update the Boiler and Pressure Vessel Rules and Regulations to conform to those of the most current editions of the American Society of Mechanical Engineers (ASME) Pressure Vessel code and the National Board Safety and Inspection codes; therefore, there are no alternative regulatory methods to achieve this goal.

Periodic review and small business impact review report of findings

If you are using this form to report the result of a periodic review/small business impact review that was announced during the NOIRA stage, please indicate whether the regulation meets the criteria set out in Executive Order 17 (2014), e.g., is necessary for the protection of public health, safety, and welfare, and is clearly written and easily understandable. In addition, as required by 2.2-4007.1 E and F, please include a discussion of the agency's consideration of: (1) the continued need for the regulation; (2) the nature of complaints or comments received concerning the regulation from the public; (3) the complexity of the regulation; (4) the extent to which the regulation overlaps, duplicates, or conflicts with federal or state law or regulation; and (5) the length of time since the regulation has been evaluated or the degree to which technology, economic conditions, or other factors have changed in the area affected by the regulation.

These proposed amendments are the result of periodic review. There were no comments received concerning this regulation during the public comment period, August 8, 2016 through September 7, 2016. This regulation meets the criteria set out in Executive Order 17 (2014): 1) there is a continued need for the regulation for the protection of public health, safety, and welfare; 2) there have been no known complaints or comments received concerning the proposed regulation from the public; 3) the proposed regulation is not overly complex, instead, it is clearly written and easily understandable; 4) it does not overlap, duplicate, or conflict with federal or state law or regulation; and 5) it is reviewed at

least every four years, as required by Executive Order 17 (2014), and it is reviewed as necessary to reflect the most current version of standards in use by this industry.

Public comment

Please summarize all comments received during the public comment period following the publication of the NOIRA, and provide the agency response.

Commenter	Comment	Agency response

No comments were received during the August 8, 2016 through September 7, 2016, NOIRA 30-day public comment period.

Family impact

Please assess the impact of this regulatory action on the institution of the family and family stability including to what extent the regulatory action will: 1) strengthen or erode the authority and rights of parents in the education, nurturing, and supervision of their children; 2) encourage or discourage economic self-sufficiency, self-pride, and the assumption of responsibility for oneself, one's spouse, and one's children and/or elderly parents; 3) strengthen or erode the marital commitment; and 4) increase or decrease disposable family income.

The propose amendments are not expected to have any impact on the institution of the family and family stability.

Detail of changes

Please list all changes that are being proposed and the consequences of the proposed changes; explain the new requirements and what they mean rather than merely quoting the proposed text of the regulation. If the proposed regulation is a new chapter, describe the intent of the language and the expected impact. Please describe the difference between existing regulation(s) and/or agency practice(s) and what is being proposed in this regulatory action. If the proposed regulation is intended to replace an emergency regulation, please follow the instructions in the text following the three chart templates below.

For changes to existing regulation(s), please use the following chart:

Current section number	Proposed new section number, if applicable	Current requirement	Proposed change, intent, rationale, and likely impact of proposed requirements
16VAC25-50 FORMS		Forms (16VAC 25-50) Form R-1, Report of Repair, National Board Inspection Code NB-66 (rev. 2012)	Forms (16VAC 25-50) Form R-1, Report of Repair, National Board Inspection Code NB-66 (rev. 2012) (rev.13 6/25/15)

<p>16VAC25-50 Documents Incorporated by Reference (16VAC 25-50)</p>		<p>Form R-2, Report of Alteration, National Board Inspection Code (eff. 1/1/99)</p> <p>Form R-3, Report of Parts Fabricated By Welding, National Board Inspection Code (eff. 1/1/99)</p> <p>Form R-4, Report Supplementary Sheet, National Board Inspection Code (eff. 1/1/99)</p> <p>Documents Incorporated by Reference (16VAC 25-50)</p> <p>2007 Boiler and Pressure Vessel Code, ASME Code, American Society of Mechanical Engineers</p> <p>National Board Bylaws, National Board of Boiler and Pressure Vessel Inspectors, August 8, 1996</p> <p>ANSI/NB 23, 2007 National Board Inspection Code, National Board of Boiler and Pressure Vessel Inspectors</p> <p>ASME Code B 31.1, ASME Code for Pressure Piping, American National Standards Institute, 2007;</p> <p>NFPA 85 Boiler and Combustion Systems Hazards, 2001 Edition, National Fire Protection Association;</p> <p>Part CG (General), Part CW (Steam and Waterside Control) and Part CF</p>	<p>Form R-2, Report of Alteration, National Board Inspection Code (eff. 1/1/99) <u>NB-229 (rev.7 11/12/15)</u></p> <p>Form R-3, Report of Parts Fabricated By Welding, National Board Inspection Code (eff. 1/1/99) <u>NB-230 (Rev.3 9/24/15)</u></p> <p>Form R-4, Report Supplementary Sheet, National Board Inspection Code (eff. 1/1/99) <u>NB-231 (9/23/15)</u>.</p> <p>Documents Incorporated by Reference (16VAC 25-50)</p> <p>2007 <u>2015</u> Boiler and Pressure Vessel Code, ASME Code, American Society of Mechanical Engineers;</p> <p>National Board Bylaws, National Board of Boiler and Pressure Vessel Inspectors, August 8, 1996 <u>August 12, 2015</u>;</p> <p>ANSI/NB 23, 2007 <u>2015</u> National Board Inspection Code, National Board of Boiler and Pressure Vessel Inspectors;</p> <p>ASME Code B 31.1, ASME Code for Pressure Piping, American National Standards Institute, 2007 <u>2014</u>;</p> <p>NFPA 85 Boiler and Combustion Systems Hazards, 2001 Edition <u>2015 Edition</u>, National Fire Protection Association;</p> <p>Part CG (General), Part CW (Steam and Waterside Control) and Part CF (Combustion Side Control) Flame</p>
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		(Combustion Side Control) Flame Safeguard of ANSI/ASME CSD-1, Controls and Safety Devices for Automatically Fired Boilers, 2009, American Society of Mechanical Engineers; and API 510, Pressure Vessel Inspection Code, Maintenance Inspection, Rating, Repair and Alteration, Ninth Edition, June 2006, American Petroleum Institute.	Safeguard of ANSI/ASME CSD-1, Controls and Safety Devices for Automatically Fired Boilers, <u>2009</u> <u>2012</u> , American Society of Mechanical Engineers; and API 510, Pressure Vessel Inspection Code, Maintenance In-service Inspection, Rating, Repair and Alteration, Ninth Edition <u>Tenth Edition</u> , June 2006 <u>May 2014</u> , American Petroleum Institute.
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If an existing regulation or regulations (or parts thereof) are being repealed and replaced by one or more new regulations, please use the following chart:

Current chapter-section number	Proposed new chapter-section number, if applicable	Current requirement	Proposed change, intent, rationale, and likely impact of proposed requirements

If a new regulation is being promulgated, that is not replacing an existing regulation, please use this chart:

Section number	Proposed requirements	Other regulations and law that apply	Intent and likely impact of proposed requirements

If the proposed regulation is intended to replace an emergency regulation, and the proposed regulation is identical to the emergency regulation, please choose and fill out the appropriate chart template from the choices above. In this case “current section number” or “current chapter-section number” would refer to the **pre-emergency** regulation.

If the proposed regulation is intended to replace an emergency regulation, and the proposed regulation includes changes since the emergency regulation, please create two charts: 1) a chart describing changes from the **pre-emergency** regulation to the proposed regulation as described in the paragraph above, and 2) a chart describing changes from the **emergency** regulation to the proposed regulation. For the second chart please use the following title: “Changes from the Emergency Regulation.” In this case “current section number” or “current chapter-section number” would refer to the **emergency** regulation.

**AUTHORIZATION TO FILE DOCUMENTS INCORPORATED
BY REFERENCE BY DESCRIPTION**

Submit this form to request an exemption from the requirements of filing in full textual material adopted by reference into regulations. Questions, contact Office of the Registrar of Regulations.

① Agency: Virginia Department of Labor and Industry/Safety and Health Codes Board

② VAC Number/Chapter Title: 16VAC25-50

③ Effective Date of Final Regulation (leave blank for proposed stage):

④ Name of Document Incorporated by Reference (include edition or effective/revised date):
See attached list.

⑤ Summary or description of the document incorporated by reference:
The attached list includes the names of the documents to be incorporated by reference, as well as a description of each document.

⑥ Is a copy of the document incorporated by reference in custody of the agency and available to the public for inspection and copying as required by § 2.2-4103? YES NO

⑦ Document may be inspected at the following agency location:

Department of Labor and Industry
Main Street Centre, 600 East Main Street,
Suite 207
Richmond, Virginia 23219

Document may be obtained from the following entity (include website and cost of document):

See attached list.

⑧ Explain why it is impractical to file a copy of the document incorporated by reference:
These documents are voluminous (some are several volume sets), copyrighted, and expensive.

⑨ Attach a copy of the document cover, title page, and copyright page.

Requested by: Holly Raney, Regulatory Coordinator, 804.371-2631

Print Name/Telephone Number of Agency Regulatory Coordinator

Holly Raney

Signature of Agency Regulatory Coordinator

March 1, 2017

Date

Approved:

Registrar of Regulations

Date

List of Documents for Incorporation by Reference

Amendments to 16VAC25-50, Boiler and Pressure Vessel Rules and Regulations

FORMS

Form R-1, Report of Repair, National Board Inspection Code NB-66 (~~rev. 2012~~) (rev.13 6/25/15)

Form R-2, Report of Alteration, National Board Inspection Code (~~eff. 1/1/99~~) NB-229 (rev.7 11/12/15)

Form R-3, Report of Parts Fabricated By Welding, National Board Inspection Code (~~eff. 1/1/99~~) NB-230 (Rev.3 9/24/15)

Form R-4, Report Supplementary Sheet, National Board Inspection Code (~~eff. 1/1/99~~) NB-231 (9/23/15).

Documents Incorporated by Reference (16VAC 25-50)

1. ~~2007~~ 2015 ASME Boiler and Pressure Vessel Code [12 volumes]

The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
www.asme.org

Summary – Provides uniform standards governing the construction and installation of boilers and pressure vessels and recommended rules for the care and operation of boilers.

2. National Board Bylaws, National Board of Boiler and Pressure Vessel Inspectors, ~~August 8, 1996~~ August 12, 2015 [3 volumes]

The National Board of Boiler and Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, Ohio 43229-1183
www.nationalboard.org

Summary - Provides standards governing the issuance of commissions and certificates of competency to inspectors for the purpose of conducting inspections of boilers and pressure vessels.

3. ANSI/NB 23, ~~2007~~ 2015 National Board Inspection Code, National Board of Boiler and Pressure Vessel Inspectors

The National Board of Boiler and Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, Ohio 43229-1183
www.nationalboard.org

Summary – Provides uniform standards governing the inspection, repair and alteration of boilers and pressure vessels.

4. ASME Code B 31.1 ~~2007~~ 2014, ASME Code for Pressure Piping, American National Standards Institute

The American Society of Mechanical Engineers, International
Two Park Avenue
New York, NY 10016-5990
www.asme.org

Summary – Provides uniform standards governing power (pressure) piping in connection with boilers and pressure vessels.

5. NFPA 85 Boiler and Combustion Systems Hazards, ~~2001 Edition~~ 2015 Edition, National Fire Protection Association

National Fire Protection Association (NFPA)
1 Batterymarch Park
Quincy, MA 02169-7471
www.nfpa.org

Summary – Provides standards for the prevention of furnace explosions/implosions in various types of boiler-furnaces.

6. Part CG (General), Part CW (Steam and Waterside Control) and Part CF (Combustion Side Control) Flame Safeguard of ANSI/ASME CSD-1, Controls and Safety Devices for Automatically Fired Boilers, ~~2009~~ 2012, American Society of Mechanical Engineers

The American Society of Mechanical Engineers,
Three Park Avenue
New York, NY 10016-5990
www.asme.org

Summary – Provides uniform standards governing pressure piping in connection with gas-fired boilers and pressure vessels.

7. API 510, Pressure Vessel Inspection Code: ~~Maintenance~~ In-service Inspection, Rating, Repair and Alteration, ~~Ninth Edition~~ Tenth Edition, ~~June 2006~~ May 2014, American Petroleum Institute.

American Petroleum Institute
1220 L. Street, NW
Washington, D.C. 20005-4070
www.api.org

Summary – Provides standards governing the maintenance, inspection, rating, repair and alteration of pressure vessels.

All of these documents are very lengthy and are copyrighted. They are available for inspection at the Department of Labor and Industry office, Main Street Centre, 600 East Main Street, Suite 207, Richmond, VA 23219.

FORM R-1 REPORT OF REPAIR
in accordance with provisions of the *National Board Inspection Code*

(Authorized Rep. initials)

(Inspectors initials)

(Form "R" Registration no.)

(P.O. no., job no., etc.)

1. WORK PERFORMED BY: _____
(name of repair organization)

(address)

2. OWNER: _____
(name)

(address)

3. LOCATION OF INSTALLATION: _____
(name)

(address)

4. ITEM IDENTIFICATION: _____ NAME OF ORIGINAL MANUFACTURER: _____
(boiler, pressure vessel, or piping)

5. IDENTIFYING NOS: _____ (mfg. serial no.) _____ (National Board no.) _____ (jurisdiction no.) _____ (other) _____ (year built)

6. NBIC EDITION/ADDENDA: _____ (edition) _____ (addenda)

Original Code of Construction for Item: _____ (name / section / division) _____ (edition / addenda)

Construction Code Used for Repair Performed: _____ (name / section / division) _____ (edition / addenda)

7. REPAIR TYPE: welded graphite pressure equipment FRP pressure equipment

8. DESCRIPTION OF WORK: Form R-4, Report Supplementary Sheet is attached FFSA Form (NB-403) is attached
(use Form R-4, of necessary))

_____ Pressure Test, if applied _____ psi MAWP _____ psi

9. REPLACEMENT PARTS: (Attached are Manufacturer's Partial Data Reports or Form R-3's properly completed for the following items of this report):
(name of part, item number, data report type or certificate of Compliance, mfg's. name and identifying stamp)

10. REMARKS:

FORM R-2 REPORT OF ALTERATION
in accordance with provisions of the *National Board Inspection Code*

(Authorized Rep. initials)

(Inspectors initials)

(Form "R" Registration no.)

(P.O. no., job no., etc.)

1a. DESIGN PERFORMED BY: _____
(name of "R" organization responsible for design)

(address)

1b. CONSTRUCTION PERFORMED BY: _____
(name of "R" organization responsible for construction)

(address)

2. OWNER OF PRESSURE RETAINING ITEM: _____
(name)

(address)

3. LOCATION OF INSTALLATION: _____
(name)

(address)

4. ITEM IDENTIFICATION: _____ NAME OF ORIGINAL MANUFACTURER: _____
(boiler, pressure vessel, or piping)

5. IDENTIFYING NOS: _____
(mfg. serial no.) (National Board no.) (jurisdiction no.) (other) (year built)

6. NBIC EDITION/ADDENDA: _____
(edition) (addenda)

Original Code of Construction for Item: _____
(name / section / division) (edition / addenda)

Construction Code Used for Alteration Performed: _____
(name / section / division) (edition / addenda)

7a. DESCRIPTION OF DESIGN SCOPE: Form R-4, Report Supplementary Sheet is attached

7b. DESCRIPTION OF CONSTRUCTION SCOPE: Form R-4, Report Supplementary Sheet is attached

_____ Pressure Test, if applied _____ psi MAWP _____ psi

(Form "R" Registration no.)

(P.O. no., job no., etc.)

8. REPLACEMENT PARTS: (Attached are Manufacturer's Partial Data Reports or Form R-3's properly completed for the following items of this report):
(name of part, item number, data report type or Certificate of Compliance, mfg's. name and identifying stamp)

9. REMARKS:

DESIGN CERTIFICATION

I, _____, certify that to the best of my knowledge and belief the statements in this report are correct and that the Design Change described in this report conforms to the *National Board Inspection Code*. National Board "R" Certificate of Authorization No. _____ expires on _____

Date _____, _____ Signed _____
(name of design organization) (authorized representative)

CERTIFICATE OF DESIGN CHANGE REVIEW

I, _____, holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspector and certificate of competency, where required, issued by the jurisdiction of _____ and employed by _____ of _____ have reviewed the design change as described in this report and state that to the best of my knowledge and belief such change complies with the applicable requirements of the *National Board Inspection Code*.
By signing this certificate, neither the undersigned nor my employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage or loss of any kind arising from or connected with this inspection.

Date _____ Signed _____ Commissions _____
(inspector) (National Board and jurisdiction no.)

CONSTRUCTION CERTIFICATION

I, _____, certify that to the best of my knowledge and belief the statements in this report are correct and that all material, construction, and workmanship on this Alteration conforms to the National Board Inspection Code. National Board "R" Certificate of Authorization No. _____ expires on _____

Date _____, _____ Signed _____
(name of alteration organization) (authorized representative)

CERTIFICATE OF INSPECTION

I, _____, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and certificate of competency, where required, issued by the Jurisdiction of _____ and employed by _____ of _____

have inspected the work described in this report on _____, _____ and state that to the best of my knowledge and belief, this work complies with the applicable requirements of the National Board Inspection Code. By signing this certificate, neither the undersigned nor my employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage, or loss of any kind arising from or connected with this inspection.

Date _____ Signed _____
(inspector) (National Board and jurisdiction no.)

FORM R-3 REPORT OF PARTS FABRICATED BY WELDING
in accordance with provisions of the *National Board Inspection Code*

(Authorized Rep. initials)

(Inspectors initials)

(Form "R-3" Registration no.)

(P.O. no., job no., etc.)

1. MANUFACTURED BY: _____
(name of "R" certificate holder)

(address)

2. MANUFACTURED FOR: _____
(name)

(address)

3. DESIGN CONDITION SPECIFIED BY: _____ CODE DESIGN BY: _____

4. DESIGN CODE: _____

5. REPAIR/ALTERATION/MODIFICATION ACTIVITIES

Name of Part	Qty.	Line No.	Manufacturer's Identifying No.	Manufacturer's Drawing No.	MAWP	Shop Hydro PSI	Year Built

6. DESCRIPTION OF PARTS

Line No.	(a) Connections other than tubes			Heads or Ends			(b) Tubes		
	Size and Shape	Material Spec. No.	Thickness (in.)	Shape	Thickness (in.)	Material Spec. No.	Diameter (in.)	Thickness (in.)	Material Spec. No.

7. REMARKS:

(Form "R-3" Registration no.)

(P.O. no., job no., etc.)

CERTIFICATE OF COMPLIANCE

I, _____, certify that to the best of my knowledge and belief the statements made in this report are correct and that all material, fabrication, construction, and workmanship of the described parts conforms to the *National Board Inspection Code* and the standards of construction cited.

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Date _____, _____ Signed _____
(name of "R" Certificate holder) (Authorized Representative)

CERTIFICATE OF INSPECTION

I, _____, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and certificate of competency, where required, issued by the Jurisdiction of _____ and employed by _____ of _____ have inspected the part described in this report on _____, _____ and state that to the best of my knowledge and belief the parts comply with the applicable requirements of the *National Board Inspection Code*.

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Date _____, _____ Signed _____ Commissions _____
(inspector) (National Board and jurisdiction No.)

1)

ASME BPVC.I-2015

SECTION I

2015

ASME Boiler and
Pressure Vessel Code
An International Code

**Rules for Construction
of Power Boilers**



1)

AN INTERNATIONAL CODE

2015 ASME Boiler & Pressure Vessel Code

2015 Edition

July 1, 2015

RULES FOR CONSTRUCTION OF POWER BOILERS

ASME Boiler and Pressure Vessel Committee
on Power Boilers



The American Society of
Mechanical Engineers

Two Park Avenue • New York, NY • 10016 USA

Date of Issuance: July 1, 2015

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2)

BYLAWS

Approved by Board of Trustees: August 12, 2015

*Denotes revised section(s)
NB-42
Rev. 20



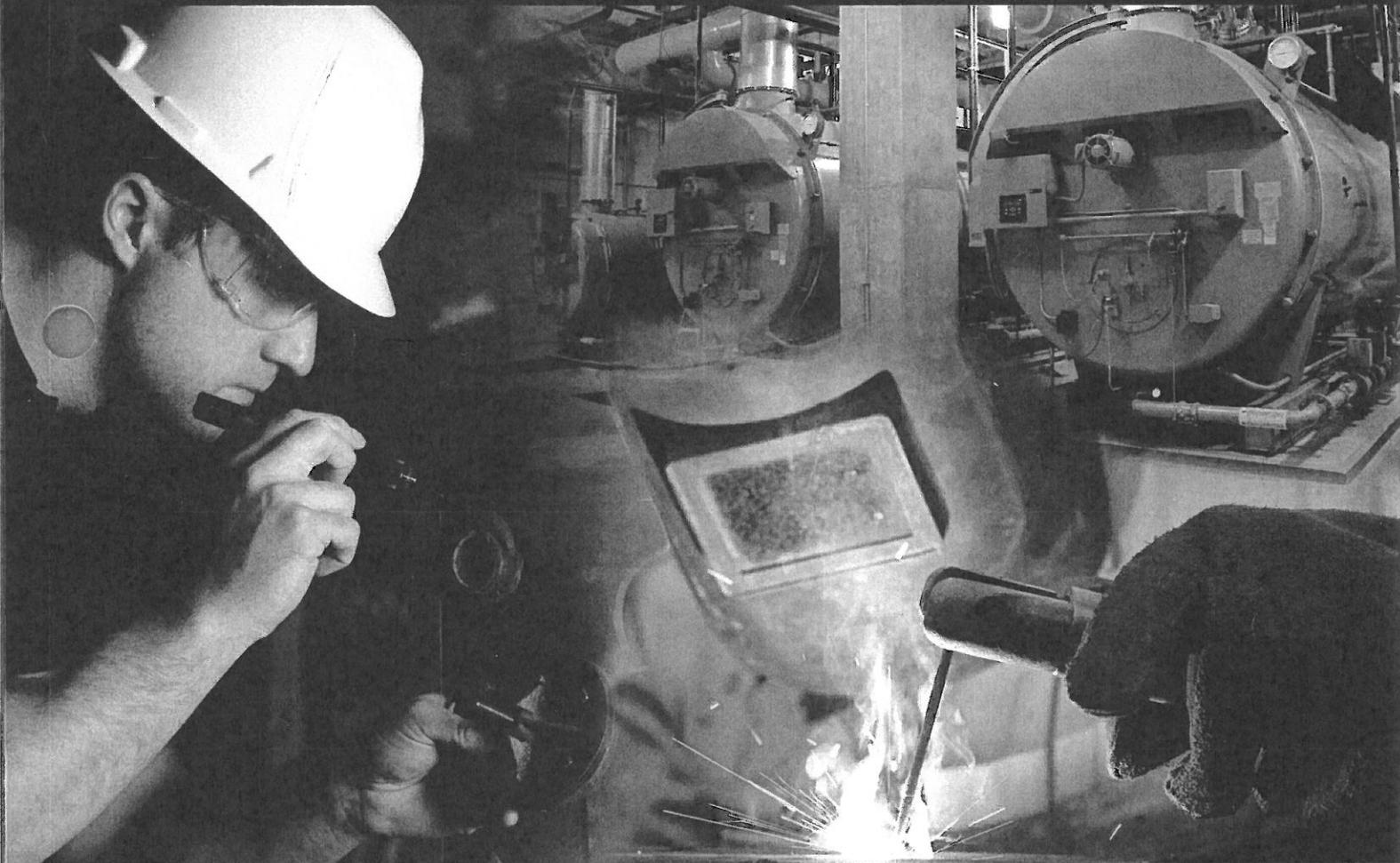
THE
NATIONAL
BOARD
OF BOILER AND
PRESSURE VESSEL
INSPECTORS

3)



2015 NBIC

NATIONAL BOARD INSPECTION CODE



PART 1 INSTALLATION
AN AMERICAN NATIONAL STANDARD

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

3)

**NATIONAL BOARD INSPECTION CODE
2015 EDITION
DATE OF ISSUE — JULY 1, 2015**

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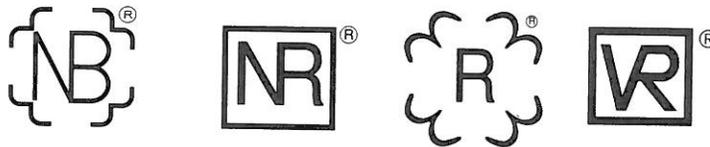
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4)

ASME B31.1-2014
(Revision of ASME B31.1-2012)

Power Piping

ASME Code for Pressure Piping, B31

AN INTERNATIONAL PIPING CODE®



**The American Society of
Mechanical Engineers**

4)

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5)

85

5)

NFPA® 85
Boiler and
Combustion Systems
Hazards Code
2015 Edition



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NFPA® 85

Boiler and Combustion Systems Hazards Code

2015 Edition

This edition of NFPA 85, *Boiler and Combustion Systems Hazards Code*, was prepared by the Technical Committees on Fluidized Bed Boilers, Fundamentals of Combustion Systems Hazards, Heat Recovery Steam Generators, Multiple Burner Boilers, Pulverized Fuel Systems, Single Burner Boilers, and Stoker Operations and released by the Correlating Committee on Boiler Combustion System Hazards. It was issued by the Standards Council on November 11, 2014, with an effective date of December 1, 2014, and supersedes all previous editions.

A Tentative Interim Amendment (TIA) to 8.9.2 was issued on November 11, 2014. For further information on tentative interim amendments, see Section 5 of the Regulations Governing the Development of NFPA Standards, available at: <http://www.nfpa.org/regs>

This edition of NFPA 85 was approved as an American National Standard on December 1, 2014.

Origin and Development of NFPA 85

NFPA 85 has a long history of documents that were combined to form the present-day NFPA 85. (See Annex M, which is a flowchart depicting the complex development of NFPA 85.) The first of these documents, in 1924, was NBFU 60, "Regulations of the National Board of Fire Underwriters for the Installation of Pulverized Fuel Systems as Recommended by the National Fire Protection Association," which changed from an NBFU/NFPA document to an NFPA code in 1946.

The 2001 edition of NFPA 85 was a compilation of the following six standards:

NFPA 8501, *Standard for Single Burner Boiler Operation*

NFPA 8502, *Standard for the Prevention of Furnace Explosions/Implosions in Multiple Burner Boilers*

NFPA 8503, *Standard for Pulverized Fuel Systems*

NFPA 8504, *Standard on Atmospheric Fluidized-Bed Boiler Operation*

NFPA 8505, *Standard for Stoker Operation*

NFPA 8506, *Standard on Heat Recovery Steam Generator Systems*

In the 2001 edition, significant new material was added for multiple burner boilers, including requirements for reburn systems. For heat recovery steam generators, the minimum purge flow requirements prior to starting the combustion turbine were reduced.

The 2004 edition was reorganized to provide administrative requirements in Chapters 1, 2, and 3 and common requirements in Chapter 4, Fundamentals of Boiler Combustion Systems. Subsequent chapters covered the specific requirements for each of the boiler and combustion systems covered by the document. The 2004 edition also provided new requirements that addressed selective catalytic reduction (SCR) systems for multiple burner boilers.

In the 2007 edition, Annex M was added to assist users to better understand the complex development of what is now known as NFPA 85. Chapter 4 in the 2007 edition also included new requirements for flue gas path auxiliary systems and flame proving, along with supporting annex material.

The 2007 edition recognized the use of valve proving systems for single burner boilers in Chapter 5. Furnace structural design requirements for multiple burner boilers were added to Chapter 6 and account for the impact of booster fans. Implosion protection was clarified as not being required on units that have no fan in the flue gas stream downstream of the boiler. In conjunction with those changes, a definition of *booster fan* was added to Chapter 3. New requirements for flue gas path auxiliary systems were added to Chapters 6 and 7 for multiple burner boilers and fluidized-bed boilers, respectively. New requirements were added for lance and burner safety shutoff valves on fluidized-bed boilers.

6)

ASME CSD-1-2012
(Revision of ASME CSD-1-2009)

Controls and Safety Devices for Automatically Fired Boilers

AN AMERICAN NATIONAL STANDARD



**The American Society of
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Date of Issuance: May 10, 2012

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7)

Pressure Vessel Inspection Code: In-service Inspection, Rating, Repair, and Alteration

API 510
TENTH EDITION, MAY 2014



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